III. a. Repeat above procedures A, B, & C with one CAMA trunk interface unit port disconnected to verify operation with PSAP. ✓

b. Repeat above procedures A, B, & C with two CAMA trunk interface unit ports disconnected to verify audio connection with PSAP. ✓

IV. Repeat procedure "I" above, dialing 911 extension with no information (non-DID) and automatic inclusion of default ALI information. ✓

V. Repeat procedure "I" above during an update session between the Call Accounting system and the E-911 PC. N/A at this site

VI. a. Test alarming procedure for CAMA trunk interface unit by disconnection of CAMA trunk ports.

*Verify that system sends alarm notification to LED and alphanumeric pager. N/A

b. Measure DC Voltage between tip and ring.
(Maximum 55 VDC)

N/A at this site ~~Trk 1~~ ___ ~~Trk 2~~ ___ ~~Trk 3~~ ___ (ie Cama trunk database interfacing unit at Apartment site)

c. Measure loop current between tip and ring.
N/A at this site (Maximum 23 MA)

~~Trk 1~~ ___ ~~Trk 2~~ ___ ~~Trk 3~~ ___

d. Test alarming capabilities of CAMA interface mux unit, when mux is installed.

___

✓ (Does not apply at this site)

e. Check alarm capabilities of ALI database and identify alarm notification capabilities to communicate with PC.

✓

VII. Repeat procedures I, testing CAMA trunk interface unit with 110V and/or - 48V power options.

N/A

- Contact 9-1-1 Supervision when test has completed.
(Dorothy Castro)

COMPLETION OF TEST:

The test was satisfactorily performed ~~at~~ for the Brighton Place **Apartments, using the test format provided by Greater Harris County Emergency Network.** as TCG

Test Completed and Verified.

For: ~~Bressler & Associates~~
By: [signature] **Date:** 11/13/95

Greater Harris County Emergency Network Representative

FOR: TCG @ 1301 Fannin Houston, TX

By: [signature: Monique Raymond]

Date: 11-13-95

PROPERTY NAME	STAT	CONTACT	DATE	REASON	
Woodland Parks	Pass	Monique	09/27/95	Test	
Forest Creek	Fail	Jorgensen	09/29/95	Third Call	
Farnham Park	Fail	Lebouef		CAMA	
City Plaza	Pass	Leboeuf		Test	
Metropolitan	Fail	Leboeuf		Data Base	
Remington Crts	Pass	Glen Farik		Test	
Coopers Mill	Pass	Glen Farik		Test	
Farnham Park	Pass	LeBoeuf		Test	
Park Village	Pass	Leboeuf		Test	
Chartwell	Pass	Leboeuf		Test	
Richmond T/H	Fail	Jorgensen		Third Call	
Farnham Park	Fail	Leboeuf	10/10/95	Data Base	
City Plaza	Pass	Leboeuf	10/11/95	Test	
Coopers Mill	Pass	Glen Farik	10/22/95	Test	
Park Village	Pass	Leboeuf	10/16/95	Test	
Metro @ Uptown	Fail	Leboeuf	10/16/95	Data Base	
Chartwell	Pass	Leboeuf	10/17/95	Test	
Remington Court	Pass	Glen Farek	10/26/95	Test	
Brighton Apts.	Pass	Monique	11/13/95	Test	
U of Houston	Fail	Brian Dooling	11/20/95	Bypass	
U of Houston	Pass	Brian Dooling	11/27/95	Test	
Willowbrook Ter	Pass	Rich Hatch	11/29/95	Test	
Wallingford	Pass	Monique	12/05/95	Test	
Houston House	Fail	Jones	12/06/95	Various	
Houston House	Fail	Jones	12/07/95	CAMA	
Piney Point	Fail	Jorgensen	1/08/96	PBX	

BASSLER & ASSOCIATES

COSTING AND ACTIVITY REPORT

E9-1-1 PSP/ALI ACTIVATION

September 3, 1996 **4 Pages**

PROPERTY NAME	STAT	CONTACT
The Barrington	Fail	Glen Farik
The Barrington	Fail	Glen Farik
Chestnut Hill	Fail	Glen Farik
Towne Lake	Fail	Glen Farik
The Seasons	Fail	Glen Farik
Coral Club	Fail	Glen Farik
Lakes of 610	Fail	Glen Farik
Park at Lakeside	Fail	Glen Farik
The Parkway	Fail	Glen Farik
Timbers at Deerbrook	Fail	Glen Farik
Piney Point	Fail	Gerdes
Piney Point	Fail	Slater
Vanderbilt	Inc	Monique
Vanderbilt	Inc	Monique
Vanderbilt	Pass	Monique
Eagle Creek	Pass	Monique

DATE	REASON	
02/08/95	Instruction	
02/09/95	Third Call	
02/10/95	Grounding	
02/16/95	Grounding	
02/21/95	Grounding	
02/27/95	Grounding	
03/01/95	Third Call	
03/03/95	Grounding	
03/07/95	Grounding	
03/09/95	Grounding	
07/19/95	Third Call	
07/20/95	Data Base	
09/01/95	Wait	
09/02/95	Wait	
09/11/95	Test	
09/27/95	Test	

PROPERTY NAME	STAT	CONTACT	DATE	REASON	
Piney Point	Fail	Jorgenson	1/08/96	PBX	
Richmond Towne Homes	Fail	Jorgenson	1/08/96	PBX	
Cambridge Place	Pass	Monique	1/17/96	Test	
Stonehaven @ Galleria	Fail	Chris Robin	1/24/96	Database	
Park @ Lakeside	Pass	Chris Robin	2/6/96	Test	
Houston House	TPass	John Jones	2/12/96	Test	
Metro-Uptown	Pass	James Lebouef	3/18/96	Test	
Carlton	Fail	James LeBoeuf	3/19/96	Routing Table	
Belmont	Pass	James LeBouef	3/20/96	Test	
Carlton	Pass	James LeBouef	3/20/96	Test	
Coral Club	Pass	Chris Robin	3/26/96	Test	
Chestnut Hill	Pass	Chris Robin	3/26/96	Test	
Parkway	Pass	Chris Robin	3/27/96	Test	
Lakes of 610	Pass	Chris Robin	3/27/96	Test	
Timbers of Deerbrook	Pass	Chris Robin	3/28/96	Test	
Town Center	Pass	Chris Robin	3/28/96	Test	
Seasons Apt.	Pass	Steven Cook	4/3/96	Test	
Sterling Court	Pass	Steven Cook	4/3/96	Test	
Hastings Place	Fail	Chris Robin	4/3/96	3rd CAMA	
Park @ Lakeside	Fail	Chris Robin	4/3/96	2nd CAMA	
Sunbury Downs	Pass	Chris Robin	4/4/96	Test	
Peppermill Place	Pass	Chris Robin	4/4/96	Test	

PROPERTY NAME	STAT	CONTACT	DATE	REASON
Hampton Hill	Pass	Chris Robin	4/18/96	Test
Hastings Place	Fail	Chris Robin	4/18/96	Heat Problem
Stone Haven	Pass	Chris Robin	4/24/96	Test
Park @ Woodlake	Fail	Chris Robin	4/24/96	CAMA
Houston House	Pass	Earl Taylor	5/21/96	Test
Memorial Heights	Fail	Earl Taylor	5/21/96	CAMA
Oaks	Pass	Earl Taylor	5/22/96	Test
Memorial Heights	Pass	Earl Taylor	5/22/96	Test
Richmond Townhomes	Pass	Russ Jorgensen	5/23/96	Test
Cypress Lake Station	Pass	Earl Taylor	5/28/96	Test

STATE OF WASHINGTON
MILITARY DEPARTMENT
EMERGENCY MANAGEMENT DIVISION
PO Box 40955
Olympia, WA 98504-0955
Phone: (360) 459-9191 • FAX: (360) 923-4591

WASHINGTON STATE E9-1-1 PROGRAM

Materials included for reference:

EXECUTIVE SUMMARY

The executive summary from the 1993 "PBX WORK GROUP REPORT ON THE INTERACTION OF PBXs AND KTSs WITH E-911 CALLING SERVICE". Copies of the report can be obtained from the project office by contacting Talia Langley at: desk (360) 923-4513
fax (360)923-4519
E-Mail langley@gate.emd.wa.gov

PBX LEGISLATION JUSTIFICATION

Support statements relating to legislation passed in the State of Washington.

SUBSTITUTE SENATE BILL 5089

The legislation enacted in Washington. The section of the original bill relating to business was removed from the original bill. One requirement is to report back to the Legislature in the 1997 session on the progress of national standards with recommendations on steps to be taken if such standards have not been taken.

EXECUTIVE SUMMARY

This report presents the findings and recommendations of the Washington State E-911 Advisory Committee's PBX Work Group. It addresses issues associated with Private Branch Exchange (PBX) and Key Telephone System (KTS) support of Enhanced 911 (E-911) calling service. The Work Group was established with express purpose and direction. "The PBX Work Group will provide to the E911 Advisory Committee information that can be used for making legislative, procedural, or technical recommendations concerning the interaction between PBXs and E-911."

In response to the Advisory Committee's directive, the PBX Work Group held meetings with and solicited comments from a number of end-users, emergency response agencies, and local telephone companies ("LECs"). Information was sought from the Washington Utilities and Transportation Commission about the number of PBX and off-premise extensions in the territories of the various LECs. Survey questionnaires were prepared and directed to customer-premise equipment vendors, emergency response agencies, and end-users (through the Northwest Chapter of the Tele-Communications Association (TCA)). And, developments in other states were monitored.

Based upon the information developed and on a draft technical bulletin prepared by the Telecommunications Industry Association (TIA) titled "PBX and KTS Support of E-911 Calling Service", the PBX Work Group determined the following:

1. No state or local laws or regulations mandating full E-911 compatibility of business customer-premise equipment should be imposed at this time. Once uniform national standards for the implementation of E-911 service and CPE support of it have been developed, appropriate requirements, including reasonable deadlines for compliance, should be imposed.

2. Owners/providers of PBXs serving customers in a multi-family residential environment should be required to equip, by December 31, 1995, their PBXs with the capability of transmitting ANI for the phones in each separate residential unit in a format that is compatible with the existing E-911 system. They should also be required to provide to the ALI DMS manager, or its functional equivalent, the following information subject to the limits of the NENA data record standard for each residential unit served by the PBX: the residents's name, correct street address, complex name, building number, apartment number, and a phone number that can be answered at the residential unit.

3. Schools should be required to equip or install by December 31, 1995, telephones with the capability of transmitting ANI or its functional equivalent in each separate school building in a format that is compatible with the existing E-911 system. They should also be required to provide to the ALI DMS Manager, or its functional equivalent, the following information subject to the limits of the NENA data record standard for each building unit/complex served by the PBX: the correct street address, school name, building number/name, school office or school security telephone number, and a phone number that can be answered in the vicinity of the calling telephone.

4. PBX owners/providers that are providing communications service on a resale basis (commonly known as shared tenant services) to multiple business users from a single PBX system over a physical area larger than 25,000 square feet, on more than one floor of a building, or in multiple buildings should be required to equip by December 31, 1995, their PBXs with the capability of transmitting ANI or its functional equivalent for the phones in each separate business unit/space in a format that is compatible with the existing E-911 system. They should also be required to provide to the ALI DMS Manager, or its functional equivalent, the following information subject to the limits of the NENA data record standard for each business unit/space served by the PBX: the correct street address, complex name, building number, office number, business name, and a phone number that can be answered in the business unit/space.

5. Local laws mandating full E-911 compatibility for PBX and KTS installations should promptly be preempted by state action.

6. The state should work to support efforts on the federal level to establish national technical and performance standards for the interconnection of PBXs to the E-911 system. In this regard, the PBX Work Group could be reconvened on a semi-annual basis to assist and to monitor progress towards adoption of uniform national standards for E-911 service and CPE support of it. If national standards are not developed by December 31, 1995, the E911 Advisory Committee should direct the PBX Work Group to recommend performance standards for E-911 compatibility.

7. Until national standards are adopted, the state should encourage PBX owners to deploy equipment and/or services that will provide accurate location

information for 911-callers, or work with local authorities to devise emergency response procedures that are mutually acceptable.

8. The state should encourage LECs to make services used specifically to facilitate PBX and KTS support of E-911 available to users at the lowest practical prices.

9. The state should mandate that all telephone systems owners advise their users of the dialing procedures necessary to access 911 service.

10. The state should mandate that all telephone systems owners communicate to their users the extent of automatic location identification when using E-911 service or the nature of the limitation of 911 service availability.

WASHINGTON STATE MILITARY DEPARTMENT
EMERGENCY MANAGEMENT DIVISION
Enhanced 9-1-1 Program

PBX Legislation Justification

The following comments were generated as an executive summary to the introduction of legislation in the State of Washington to address the issue of private telephone systems and the impact their utilization has on the service delivery capabilities of public safety agencies. The legislation passed in the 1995 Regular session as SSB5089. This legislation was the result of a one and one-half year study of the issues surrounding the connectivity of private telephone systems to the enhanced 9-1-1 network.

Specific provisions address the following issues:

1. Residential - Requirements that PBXs serving residential units be fully compatible by January 1, 1996 with accurate location information provided.

2. Schools - A requirement that schools include compatibility requirements in the acquisition of any new voice systems and that they provide access to a compatible telephone when facilities are in use.

3. Commercial Shared Tenant - Commercial shared tenant PBXs would be required to be fully compatible by January 1, 1996. The language restricts this requirement to those who actually sell services.

4. Uniformity - Local regulation is preempted.

5. Education & Standards - The State E911 Program is encouraged to develop educational programs for PBX owners and to assist with the development of equipment standards.

6. Business - Labor and Industries is empowered to adopt rules to require PBX owners to notify the users of systems of the dialing procedures to reach 911 and the degree that the PBX provides location information when 911 is dialed.

7. Flexibility - The Director of Community, Trade And Economic Development through the director of Fire Protection Services (State Fire Marshall) is empowered to adopt rules on the location information requirements for 911 systems.

This legislation is a compromise package developed to address the significant problems encountered with 911 calls from PBXs. It places the burden for employee protection on the employer for businesses, rather than attempting a blanket regulation that would be

inadequate for critical situations like apartment complexes which would be restrictive to the development of voice networks commonly used in business applications.

Need

There are few instances when a caller to 911 cannot relay their location verbally. However, when that happens it is generally a life or death situation. PBXs which are not interfaced provide incorrect location information when the response must be to a location far away from, or not identified with, the callers location. The task force that developed this legislation was a direct result of incidents where emergency responders were unable to provide life-saving aid because the telephone system supplied erroneous information.

Its provisions specifically address the problem by taking into account the capability of the owner to mitigate for the lack of full integration with the enhanced 911 system.

1. Residential - The probability of a person in need of assistance while being alone is highest when they are home. Correct location information is assumed to be part of the system by most citizens. With some tenant service providers including provisions for correct automatic location information in their systems it becomes a promotion of effective competition to require that all providers have an equal service level as is required by this legislation.

2. Schools - Schools were noted to be a specific problem area where the issue was not that the phone systems did not interface, which most did not, but rather that the phone systems were old and provided very limited access to telephones. Because of the limited access it did not appear that much would be gained by requiring upgrading of the existing equipment, particularly when new systems were being planned by many Districts. However, there was a clear need to have phones available to persons when the facilities are in use. this can be accomplished with the placement of pay telephones or restricted access local exchange carrier provided phones at appropriate locations.

3. Commercial Shared Tenant - This type of service is generally used in high rise buildings where a PBX used to sell services to a variety of businesses throughout the building. These are similar to residential with the exception that there are many cases where the various businesses are closely associated or under the umbrella of a common control company who, although reselling services for accounting purposes, does have an overall responsibility for the safety of the employees.

4. Uniformity - Many local governments have, or are, adopting regulations to address the incompatibility problem. Because these vary in provisions and applicability they are difficult to comply with when a business network is used in diverse locations. Uniformity will allow large system owners to plan and

inadequate for critical situations like apartment complexes which would be restrictive to the development of voice networks commonly used in business applications.

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4. Uniformity - Many local governments have, or are, adopting regulations to address the incompatibility problem. Because these vary in provisions and applicability they are difficult to comply with when a business network is used in diverse locations. Uniformity will allow large system owners to plan and

implement system wide solutions to the problem.

5. Education & Standards - Educating the business community of the issue and assisting them to develop mitigation programs is clearly one of the most effective ways to address the situation. It was noted that the State E911 program is essentially tasked to assist counties and the business community felt that it was appropriate that the state program be clearly allowed to work this issue on a universal basis. One of the problems with mandating compatibility was that there were no standards for telephone systems currently in place either by standards setting bodies or mandated by the Federal communications Commission. Again, it was felt that the state E911 office be tasked with being actively involved to develop appropriate standards which would allow the purchasers of telephone systems to better protect their investment.

6. Business - Due to the employer/employee relationship the most appropriate method to address the compatibility issues in a business environment appeared to be the empowerment of the Department of Labor and Industries to require labeling of phones and similar measures that will mitigate the situations while taking into account the unique situation of each business environment.

7. Flexibility - The definition of how accurate location information must be is facility and operationally dependant. Because of the need for this flexibility the determination of rules for adequacy determination is provided for by having this be a function of the fire marshal's office where similar regulations are widely utilized to protect life safety.

CERTIFICATION OF ENROLLMENT

SUBSTITUTE SENATE BILL 5089

54th Legislature
1995 Regular Session

Passed by the Senate April 19, 1995
YEAS 42 NAYS 0

President of the Senate

Passed by the House April 5, 1995
YEAS 96 NAYS 0

Speaker of the House of Representatives

Approved

Governor of the State of Washington

CERTIFICATE

I, Marty Brown, Secretary of the Senate of the State of Washington, do hereby certify that the attached is **SUBSTITUTE SENATE BILL 5089** as passed by the Senate and the House of Representatives on the dates hereon set forth.

Secretary

FILED

Secretary of State
State of Washington

this condition, information-forwarding requirements should be mandated for only those settings with the most risk, including schools, residences, and some business settings.

Sec. 2. RCW 80.04.010 and 1991 c 100 s 1 are each amended to read as follows:

As used in this title, unless specifically defined otherwise or unless the context indicates otherwise:

"Automatic location identification" means a system by which information about a caller's location, including the seven-digit number or ten-digit number used to place a 911 call or a different seven-digit number or ten-digit number to which a return call can be made from the public switched network, is forwarded to a public safety answering point for display.

"Automatic number identification" means a system that allows for the automatic display of the seven-digit or ten-digit number used to place a 911 call.

"Commission" means the utilities and transportation commission.

"Commissioner" means one of the members of such commission.

"Competitive telecommunications company" means a telecommunications company which has been classified as such by the commission pursuant to RCW 80.36.320.

"Competitive telecommunications service" means a service which has been classified as such by the commission pursuant to RCW 80.36.330.

"Corporation" includes a corporation, company, association or joint stock association.

"Person" includes an individual, a firm or partnership.

"Gas plant" includes all real estate, fixtures and personal property, owned, leased, controlled, used or to be used for or in connection with the transmission, distribution, sale or furnishing of natural gas, or the manufacture, transmission, distribution, sale or furnishing of other type gas, for light, heat or power.

"Gas company" includes every corporation, company, association, joint stock association, partnership and person, their lessees, trustees or receiver appointed by any court whatsoever, and every city or town, owning, controlling, operating or managing any gas plant within this state.

"Electric plant" includes all real estate, fixtures and personal property operated, owned, used or to be used for or in connection with

to a public safety answering point for 911 calls originating from station lines served by a private switch system.

"Radio communications service company" includes every corporation, company, association, joint stock association, partnership, and person, their lessees, trustees, or receivers appointed by any court, and every city or town making available facilities to provide radio communications service, radio paging, or cellular communications service for hire, sale, or resale.

"Telecommunications company" includes every corporation, company, association, joint stock association, partnership and person, their lessees, trustees or receivers appointed by any court whatsoever, and every city or town owning, operating or managing any facilities used to provide telecommunications for hire, sale, or resale to the general public within this state.

"Noncompetitive telecommunications service" means any service which has not been classified as competitive by the commission.

"Facilities" means lines, conduits, ducts, poles, wires, cables, cross-arms, receivers, transmitters, instruments, machines, appliances, instrumentalities and all devices, real estate, easements, apparatus, property and routes used, operated, owned or controlled by any telecommunications company to facilitate the provision of telecommunications service.

"Telecommunications" is the transmission of information by wire, radio, optical cable, electromagnetic, or other similar means. As used in this definition, "information" means knowledge or intelligence represented by any form of writing, signs, signals, pictures, sounds, or any other symbols.

"Water system" includes all real estate, easements, fixtures, personal property, dams, dikes, head gates, weirs, canals, reservoirs, flumes or other structures or appliances operated, owned, used or to be used for or in connection with or to facilitate the supply, storage, distribution, sale, furnishing, diversion, carriage, apportionment or measurement of water for power, irrigation, reclamation, manufacturing, municipal, domestic or other beneficial uses for hire.

"Water company" includes every corporation, company, association, joint stock association, partnership and person, their lessees, trustees or receivers appointed by any court whatsoever, and every city or town owning, controlling, operating, or managing any water system for hire within this state: PROVIDED, That for purposes of commission

NEW SECTION. **Sec. 3.** A new section is added to chapter 80.36 RCW to read as follows:

By January 1, 1997, or one year after enhanced 911 service becomes available or a private switch automatic location identification service approved by the Washington utilities and transportation commission is available from the serving local exchange telecommunications company, whichever is later, any private shared telecommunications services provider that provides service to residential customers shall assure that the telecommunications system is connected to the public switched network such that calls to 911 result in automatic location identification for each residential unit in a format that is compatible with the existing or planned county enhanced 911 system.

NEW SECTION. **Sec. 4.** A new section is added to chapter 28A.150 RCW to read as follows:

By January 1, 1997, or one year after enhanced 911 service becomes available or a private switch automatic location identification service approved by the Washington utilities and transportation commission is available from the serving local exchange telecommunications company, whichever is later, all common and public schools located in counties that provide enhanced 911 service shall provide persons using school facilities direct access to telephones that are connected to the public switched network such that calls to 911 result in automatic location identification for each telephone in a format that is compatible with the existing and planned county enhanced 911 system during all times that the facility is in use. Any school district acquiring a private telecommunications system that allows connection to the public switched network after January 1, 1997, shall assure that the telecommunications system is connected to the public switched network such that calls to 911 result in automatic location identification for each telephone in a format that is compatible with the existing or planned county enhanced 911 system.

NEW SECTION. **Sec. 5.** A new section is added to chapter 80.36 RCW to read as follows:

By January 1, 1997, or one year after enhanced 911 service becomes available or a private switch automatic location identification service approved by the Washington utilities and transportation commission is available from the serving local exchange telecommunications company,

forward automatic location identification and automatic number identification.

NEW SECTION. **Sec. 10.** A new section is added to chapter 38.52 RCW to read as follows:

The state enhanced 911 coordination office and the enhanced 911 advisory committee may participate in efforts to set uniform national standards for automatic number identification and automatic location identification data transmission for private telecommunications systems and private shared telecommunications services. The enhanced 911 advisory committee shall report to the legislature by January 1, 1997, the progress of such standards development and shall make recommendations on steps to be taken if such standards have not been adopted.

Sec. 11. RCW 43.63A.320 and 1993 c 280 s 69 are each amended to read as follows:

Except for matters relating to the statutory duties of the director of community, trade, and economic development which are to be carried out through the director of fire protection, the board shall have the responsibility of developing a comprehensive state policy regarding fire protection services. In carrying out its duties, the board shall:

(1) Adopt a state fire protection master plan;

(2) Monitor fire protection in the state and develop objectives and priorities to improve fire protection for the state's citizens;

(3) Establish and promote state arson control programs and ensure development of local arson control programs;

(4) Provide representation for local fire protection services to the governor in state-level fire protection planning matters such as, but not limited to, hazardous materials;

(5) Recommend to the director of community, trade, and economic development rules on minimum information requirements of automatic location identification for the purposes of enhanced 911 emergency service;

(6) Seek and solicit grants, gifts, bequests, devices, and matching funds for use in furthering the objectives and duties of the board, and establish procedures for administering them;

((~~(6)~~)) (7) Promote mutual aid and disaster planning for fire services in this state;

NEW SECTION. **Sec. 13.** Section 11 of this act is necessary for the immediate preservation of the public peace, health, or safety, or support of the state government and its existing public institutions, and shall take effect July 1, 1995.

--- END ---

PBX laws in various states

Colorado

The Colorado Public Utilities Commission rules for telecommunications services require resellers of basic local exchange service who use a private branch exchange switch to deliver automatic number identification for each extension.

Illinois

The Illinois 9-1-1 law, 50 ILCS 750, was amended in September, 1994 to deal with private switch service. It defines two types of service; residential and business. It requires all residential providers to be compatible with 9-1-1 by June 30, 1995, providers of new and replacement business switch service to be compatible by June 30, 1995, and all private business switch providers to be in compliance by June 30, 1999.

Mississippi

Mississippi law requires that by December 31, 1993, shared tenant service operators provide the location and telephone number information for each and every extension or user to the enhanced 9-1-1 service provider. It is the responsibility of the shared tenant service operator to maintain the data on such system. Service suppliers of centrex telephone service must cause the actual location of all extensions operating in this service to be displayed at the PSAP whenever a 911 call is placed.

Texas

Texas law defines a business service user as a business service that provides telecommunications service, including 9-1-1 service, to residential end users through a private telephone switch, requires that business service users provide equivalent 9-1-1 service as is provided to residential customers of local exchange carriers, and establishes mechanisms to collect the appropriate 9-1-1 fees.

Vermont

Vermont law (Public Law 197), effective July 1, 1994, has a PBX requirement, which may be waived on an individual case basis according to rules to be promulgated by the Vermont Enhanced 911 Board.

Washington

The Washington legislation defines ALI, ANI and private switch ALI. It requires that residential and shared business PBX owners work with E9-1-1 by January 1, 1997, except businesses in areas of 25,000 square feet or less or on one floor or one building. Schools are required to provide 9-1-1 compatible telephones where buildings are in use. The law preempts local regulations to promote consistent regulation.

RECENT SURVEY OF SAMPLE 9-1-1 CENTERS

In January of 1996, a joint APCO (Association of Public-Safety Communications Officials) NENA (National Emergency Number Association) survey was sent to 88 9-1-1 centers. Responses were received from 35 agencies (40% return rate). Based on responses to this survey, there are an estimated 190,000,000 9-1-1 calls per year. about 4.5% of these calls come from PBXs (Private Branch Exchanges). That equates to about 8,000,000 PBX 9-1-1 calls per year

About 75% of the respondents reported problems in the last six months from: "hang-ups", unknown location or lack of precise location. Problem areas cited include: School Districts, banks, car rental agencies, and residential PBXs.

EXAMPLES OF PROBLEMS -

- Apopka, Florida -

  Motel had to be searched room-by-room to find a heart attack victim. Location was not available on the 9-1-1 call placed through a PBX.

- Beech Grove, Indiana -

  9-1-1 calls from Amtrak train office (downtown Indianapolis) are routed to a 9-1-1 center in the suburbs.

- Colorado Springs, Colorado

  PBX 9-1-1 call from branch bank during a robbery; several minutes response delay because wrong location displayed.

- Dupage County, Illinois -

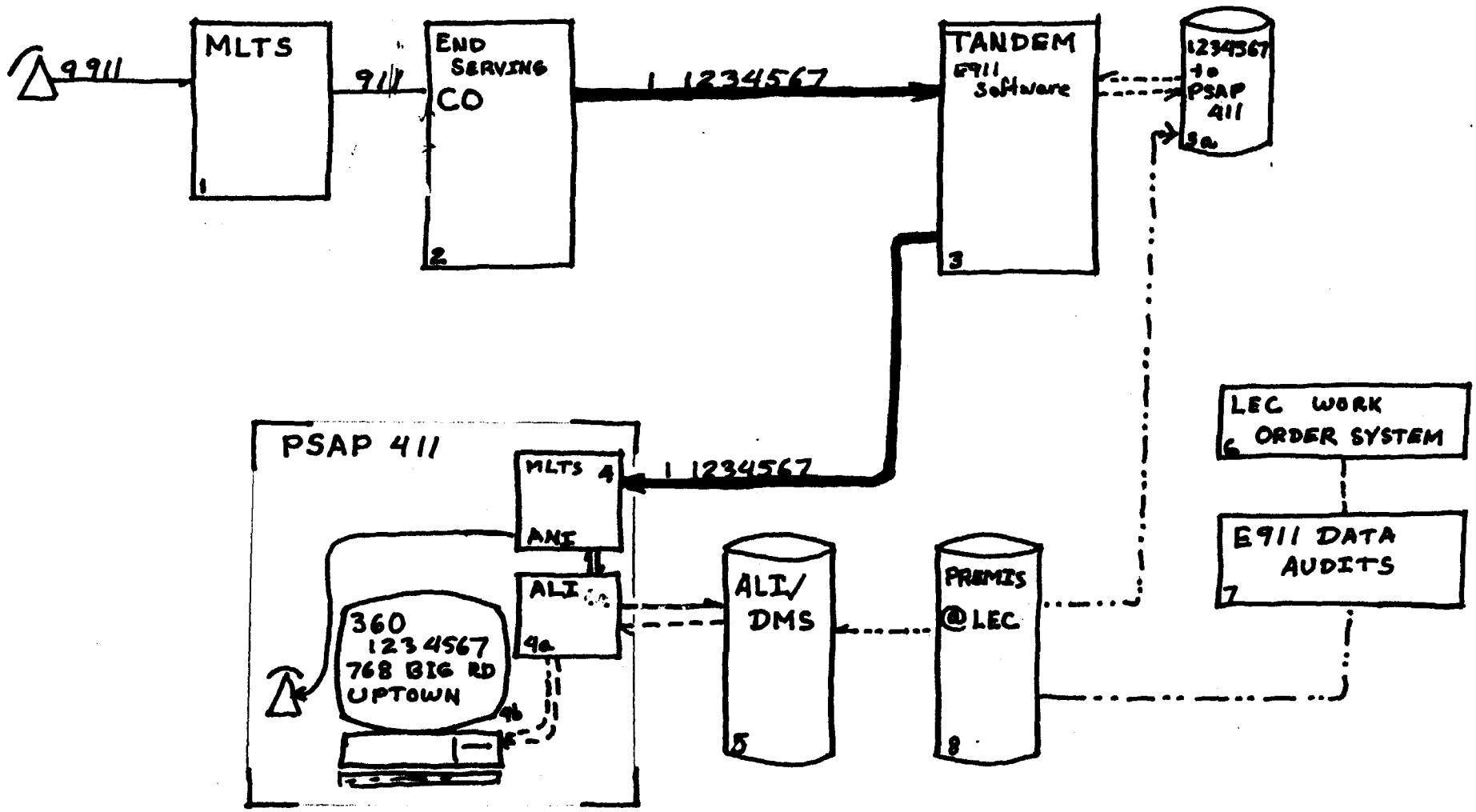
  Large warehouses identified instead of specific locations.

  Fire Department was sent to the wrong school building when a bomb threat was received on a PBX 9-1-1 call.

- Fairfax County, Virginia -

  Residential PBX service, using a 3rd party notification system, has created ongoing address location and response delay problems.

E 9-1-1 CALL ROUTING



——— VOICE

▬▬▬ MF CAMA TRUNKS

=== REAL TIME DATA

—·—·— BATCH DATA

Bob Canning

PRIVATE SWITCH 9-1-1 SERVICE

IMPLEMENTATION HANDBOOK

Compiled By

GREATER HARRIS COUNTY 9-1-1 EMERGENCY NETWORK

With The Concurrence Of

SOUTHWESTERN BELL TELEPHONE COMPANY

E 9-1-1 Data Base Guide

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9-1-1 NENA National Emergency Number Association